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ERS Field Report 34

**DATA NEEDS FOR ECONOMIC PLANNING  
FOR THE POPPY REGION OF TURKEY**

by

Buis T. Inman

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Buis T. Inman, the author, was employed as an agricultural economist by Economic Research Service, USDA (and predecessor agencies) from 1939 to 1966. He served as economic research advisor to the Government of Turkey from 1966 to 1968, and to the Government of the Republic of Korea from 1968 to 1970, when he retired. Both foreign assignments were part of programs of the Agency for International Development (AID).

Dr. Inman completed the work reported here under Contract 12-36-07-5-159. The project setting of this assignment is discussed in the introduction.

DATA NEEDS FOR ECONOMIC PLANNING  
FOR THE POPPY REGION OF TURKEY

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BUIS T. INMAN

This report represents a continuation of the program of technical assistance of the U. S. Department of Agriculture (USDA) to the Government of Turkey (GOT) in assessing the potential for improving agricultural output and associated agro-industries, and in helping outline specific programs and policy recommendations for the seven provinces where the production of opium poppies was recently banned. The first assistance was provided through the Joint Turkish/American Agricultural Team in 1972.

Since then, the USDA program to provide technical assistance to the GOT authorities in developing the former poppy growing region has been carried out under a memorandum of understanding between the GOT and the Economic Research Service (ERS) of the USDA. At present, this program provides for a full-time advisor and for short-term consultants as the need arises.

A major recommendation of the second joint team was the preparation of a comprehensive long-term development plan for the region. In this connection, requests were made for two temporary duty technicians. The first was to develop strategy for the preparation of the plan. The second was to outline data needed to develop the plan, help identify data sources, indicate steps toward initiation of a program to compile economic and related data, and determine additional data needs and general methods of collection. This report presents the written materials developed in the second assignment.

The strategy developed under the direction of Dr. Francis Kutish for preparing the regional plan called for an overall planning committee to direct

the collection of information and prepare the plan. Under this committee would be subcommittees to assemble and analyze data and technical information for the use of the overall committee in developing the regional plan. Six of these subcommittees would cover areas of work similar to those of the working groups that prepared the two Joint Turkish/American reports. Other subcommittees might be found desirable as the planning continued.

These subcommittees were:

1. General data
2. Grains
3. Livestock forage and pasture
4. Fruits and vegetables and legumes
5. Oilseeds and sugar beets
6. Irrigation
7. Area I <sup>1/</sup>

The general data subcommittee was added to the original six, to assemble two kinds of data that would be needed by the other subcommittees: data from the State Institute of Statistics on population, general land use, crop and livestock production, and living conditions; and information from government agencies of current and planned programs in the region.

The subcommittees were to review outlines that I prepared rather hastily in anticipation of their starting work soon, make revisions, and assemble and analyze the data of their respective areas.

The Area I subcommittee was to analyze data from the survey (planned by the Ministry of Village Affairs) of former poppy growing villages in Area I.

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1/ Area I is defined as land area unsuited for cultivation.

The subcommittee was also to collect other data on present employment and employment potentials, as well as data on living conditions and potentials for improvement.

The strategy in preparing the plan was for each subcommittee to analyze the total situation for a commodity or program (rather than to make the analysis on a functional basis, looking separately at production, marketing, credit, etc.). For example, the grains subcommittee would evaluate for each grain the demand, increased production potential, input requirements, additional marketing, storage and transportation requirements, bottlenecks, etc. It was believed that this approach would be much more effective in developing a realistic regional plan than if it were prepared on a ministry or general directorate approach.

Since the subcommittees were not officially established, I did not have the opportunity to work with them. However, some individuals, who had been assigned by their agencies to work on development of the plan, worked very effectively with me. For example, Walcin Saidoglu, from the Ministry of Village Affairs, worked with me to delineate Area I lands by use of land capability maps. This work was completed except for Denizli Province, for which data were not available at the time. Kamal Haksel helped revise my original grain sector outline to make it more complete and conform to an outline for presenting an analysis of the data. These men had both imagination and initiative, very vital traits for developing the plan.

One point stressed in strategy for developing the plan was that it include specific actions at the farmer and villager level. It is believed that this is necessary to be effective in carrying out programs under the plan. Consequently, recommendations reflect this strategy.

Several materials prepared during my assignment should be of value to those assigned the task of assembling data and preparing the regional plan. These materials are self-explanatory, and appear on pages 6 - 37. The tables included were prepared to correct and reconcile different sources of data and information. Following is a list of these materials, followed by a more detailed outline:

- I. Outline of data needs
  - A. General data
    1. Data needs for entire Poppy Region
    2. Data needs for each sector
  - B. Data needs for livestock, forage and pasture sector
  - C. Data needs for grain sector
  - D. Data needs for fruits, vegetables, and legumes
  - E. Data needs for oilseeds and sugar beets
  - F. Data needs for irrigation sector
  - G. Data needs for Section 6 of plan outline <sup>2/</sup>
- II. Outline for collecting, and analyzing data and technical information for the grains sector (revision of I.C. above)
- III. Sources of data and technical assistance available in developing a plan for the Poppy Region
- IV. Procedure in preparing Section 6 (farm and non-farm employment opportunities of Plan for Poppy Region)
- V. Functions of subcommittees
- VI. Proposed farm data collection in Poppy Region
- VII. Comments on proposed survey of former poppy growing villages in Area I

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<sup>2/</sup> References in this report to Sections of the Plan relate to sections of the Plan Outline for the Poppy Region.

VIII. Recommended programs for Poppy Region From Joint Turkish/American Team reports

IX. Tables

- A. Kinds of villages in the Poppy Region
- B. Land resource inventory, Poppy Region
- C. Land presently cultivated, by land use area and province
- D. Land use areas, by provinces
- E. Relationship between land capability classes and land use areas

X. Notes on meeting in Mr. Adam Karaelmas' office, April 25, 1973

## I. Outline of data needs

### A. General data

1. Data needs for entire Poppy Region
  - a. Delineate Areas I, II, III, V, VI
  - b. Population description of both farm and non farm families by counties (adm. dists.)<sup>3/</sup> and provinces, for 1960, 1965 and 1970
    - a1. Family numbers, composition
    - b1. Family head, sex, age, education
    - c1. Kind of housing
  - c. Inventory of arable land by counties and Areas II, III, V and VI for latest 3 years
    - a1. Irrigated land
      - a2. Cropping pattern
      - b2. Area, by crop
      - c2. Yield, by crop
      - d2. Total production, by crop
    - b1. Dry land
      - a2. Cropping pattern
      - b2. Area, by crop
      - c2. Yield, by crop
      - d2. Total production, by crop
  - d. Livestock inventory (numbers and production) by province and county
    - a1. Beef cattle
    - b1. Dairy cattle

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<sup>3/</sup> "Counties" and "administrative districts" are used synonymously in these outlines.

- c1. Buffalo
- d1. Goats
  - a2. Angora
  - b2. Others
- f1. Chickens

2. Data needs for each sector (the following data should be assembled for the geographic area affected by each sector program)

- a. Delineation of geographic area of project
- b. Combine data from I for each project area as needed
- c. Current activities of line agencies pertinent to projects (who does what, where and how)
  - a1. General Directorate
  - b1. Toprak Su (soil and water office)
  - c1. TMO (agricultural products office)
  - d1. Veterinary Directorate
  - e1. Agricultural Bank
  - f1. Cooperatives
  - g1. Ministry of Forestry
  - h1. Sugar Monopoly
  - i1. Et ve Balik (meat and fish organization)
  - j1. Others
- d. Non-farm oriented institutions (include those that have a potential for involvement in the project)
  - a1. Government
  - a2. Agricultural programs financed directly
  - b2. Highway construction and maintenance
  - c2. Schools

- d2. Welfare
- e2. Gasoline and oil distribution-including private
- f2. Reforestation
- g2. Other

- b1. Private
  - a2. Retail companies
  - b2. Potential for non-farm employment

- e. Description of farms
  - a1. Size of farms
    - a2. Arable land
      - a3. Irrigated
      - b3. Dry
    - b2. Grazing land
    - c2. Other
  - b1. Tenure
    - a2. Owned
    - b2. Rented
    - c2. State farms
  - c1. Types of farms
    - a2. Crop farms, by kind of crop
    - b2. Livestock farms, by kind of livestock
    - c2. Mixed farms
    - d2. Fruit or vineyard
  - d1. Input and returns data (as available)
    - a2. For individual crops
    - b2. By types of enterprises
    - c2. Profitable combinations of enterprises for various types of farms

- f. Infrastructure and services
  - a1. Village electrification
  - b1. Roads-village and area
  - c1. Drinking water
  - d1. Education
  - e1. Price policies
  - f1. Marketing structure (see detailed outline)
  - g1. Distribution system for inputs
    - a2. Fertilizer
    - b2. Insecticides
    - c2. Machinery
    - d2. Seeds
    - e2. Fuel
  - h1. Machinery repair

- B. Data needs for livestock, forage, (alfalfa, saffoin, vetch) and pasture sector
  - 1. Livestock inventory (from General data), by counties for latest 3 years
    - a. Numbers
    - b. Production
    - c. Number of farmers fattening cattle and sheep
  - 2. Forage and pasture inventory, (by counties for latest 3 years)
    - a. Forage, by kinds
      - a1. Hectares
      - b1. Total production
      - c1. Yield per hectare
    - b. Pasture
      - a1. Hectares, and number of animal unit days pastured
        - a2. Improved
        - b2. Unimproved
      - c. Land available for improved forage and pasture
        - a1. Irrigated
        - b1. Dryland
    - d. Feed grain production (see "Data needs for grain sector")
  - 3. Demand for livestock products (trend and seasonal variations in demand and price)
    - a. In area
    - b. Outside area
  - 4. Market structure - prepared by Marion Ward in project office
  - 5. Institutional situation (sanitary, price, slaughter age, etc.)
    - a. Rules and regulations

- a1. Sanitary
- b1. Price
- c1. Slaughter age
- d1. Others
- b. Financial
  - a1. Sources of credit
  - b1. Credit requirements
  - c. Technical assistance available, by source
  - d. Administrative structure
  - e. Availability of physical inputs
- 6. Requirements for project
  - a. Capital and credit
  - b. Physical
  - c. Technical
  - d. Market
  - e. Price policy
- 7. Financial analysis of farms affected
  - a. Land requirements
  - b. Capital requirement
  - c. Other inputs
  - d. Potential returns

C. Data needs for grain sector (wheat, barley, sorghum, corn, rye and millet) (Each should be treated separately except in considering crop rotations, and use as livestock feeds, etc.)

1. Crops inventory (from General data)
  - a. Area of each crop
  - b. Production
  - c. Yield
2. Market demand available to region
  - a. Local
    - a1. Seasonal
    - b1. Trend
  - b. National
  - c. Export
  - d. Price
    - a1. Government policy
    - b1. Fluctuations in price--seasonal, trend
3. Market structure
4. Activities by agencies for each grain
  - a. Inputs
  - b. Progress in development
5. Potential for increased production, by geographic location
  - a. Increased area (include desirable rotations)
  - b. Increased yields
  - c. Total increased production
6. Input requirements
  - a. Land
  - b. Capital

- c. Technology
- d. Markets
- e. Other

7. Financial analysis of grain farms

- a. Land requirements in optimal uses, including rotations with other crops
- b. Capital requirements
- c. Potential returns
- d. Number farms participating, by geographic location

## D. Data needs for fruits, vegetables, and legumes

1. Inventory of production (from General data)
  - a. Area of each crop
  - b. Production
2. Market demand (see also detailed outline prepared by Marion Ward)
  - a. Local
    - a1. Seasonal
    - b1. Trend
  - b. National
  - c. Export
  - d. Price
    - a1. Fluctuations in price--seasonal, trend
    - b1. Government policy
3. Market structure for each (see detailed outline prepared by Marion Ward)
  - a. Location
  - b. Transportation
4. Activities by agencies
  - a. Inputs
  - b. Progress in development
5. Potential for increased production of each fruit and vegetable
  - a. Geographic area and land type adapted for expansion
  - b. Increased yields
  - c. Total increased production of each

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4/ Sour cherries, cherries, plumbs, peaches, pears, quinces, strawberries, grapes, chestnut, almond and walnut. Carrots, cabbage, onions, garlic, melon, water-melon, cauliflower, peppers, tomatoes (fresh and for processing asparagus, spinach, green beans.

6. Input requirements

- a. Land
- b. Capital
- c. Plants, seeds
- d. Processing plants
- e. Fertilizer, pesticides
- f. Labor

7. Financial and physical analysis of fruit and vegetable production  
on farm basis

- a. Availability of land for optimal use, including crop rotations
- b. Availability of water
- c. Capital requirements
- d. Potential returns to farm unit
- e. Number of farms participating

E. Data needs for oilseeds (sunflower, safflower, rape) and sugar beets

1. Inventory of production (from General data)
  - a. Area of each crop
  - b. Production
  - c. Yields
2. Market demand for:
  - a. Oil
  - b. Sugar
  - c. Byproducts
  - d. Local
  - e. National
  - f. Export
  - g. Price
    1. Fluctuation in price--seasonal, trend
    2. Government policy
3. Market structure for each
  - a. Location
  - b. Transportation
  - c. Milling capacity
4. Activities by agencies
  - a. Inputs
  - b. Progress in development
5. Potential for increased production of each
  - a. Geographic area and land type adapted to expansion, rotations
  - b. Increased yields
  - c. Total increase in production

6. Input requirements

- a. Land
- b. Capital
- c. Technology
- d. Seeds
- e. Fertilizer, pesticides, herbicides
- f. Labor
- g. Processing plants

7. Financial and physical analysis on farm basis

- a. Availability of land for optimal use, including crop rotations
- b. Water availability
- c. Capital requirements
- d. Potential returns to farm unit
- e. Number of farms participating

F. Data needs for irrigation sector

1. Present irrigated area

a. Location

a1. Crops grown

b1. Production

2. Irrigable lands

a. Location

b. Soil types

c. Proposed schedule of development

a1. Short-term

b1. Intermediate

c1. Long-term

d. Short-term projects

a1. Physical characteristics

a2. Elevation

b2. Length of growing season

b1. Capital costs

c1. Expected production, by crops

d1. Market demand for products

e1. Availability of inputs

f1. Financial analysis of project

g1. Financial analysis of impact on farms

G. Data needs for Section 6 of plan outline

1. Area I type land (data from Toprak Su and Ministry of Forestry)
  - a. Land area cultivated, by province
  - b. Grass land, by province
  - c. Forested land, by county and province
    - a1. Commercial
    - b1. Non-commercial
    - c1. Lands that should be converted to forest
  - d. Relationship of Area I lands to tillable lands
2. Area I poppy growing village survey (This will require tabulation of all the data or a statistical sample of the village survey. This would also be applicable to non-poppy growing Area I (forest) villages.)
  - a. Land use
    - a1. Cropland
    - a2. Irrigated
    - b2. Non-irrigated
  - b1. Meadow land
  - c1. Grass land
  - d1. Waste lands
  - e1. Lands that can be irrigated
    - a2. Sources of water
  - f1. Problem areas
    - a2. Erosion
    - b2. Drainage
    - c2. Alkalinity

b. Population, by age, 1960, 1965, 1970

  a1. Male

  b1. Female

  c1. Education

c. Services

  a1. Marketing center

  b1. Highway and road quality and distance

  c1. Types and condition of housing

  d1. Social services

  e1. Drinking water

  f1. Electricity

  g1. Contagious diseases

d. Economic situation

  a1. Source of income

    a2. Salaried work in and outside of village, by kind of work

    b2. Business in village, including handicrafts

    c2. Agriculture

      a3. Crops grown: area and production, by kind

      b3. Livestock raised: number and production, by kind

      c3. Village income from agriculture, livestock,  
          forestry, and other sources

  b1. Desires of Villagers

    a2. What they plan or want

    a3. They can do

    b3. From government

  b2. Would they go outside village to work?

  c2. Income of villagers

- d2. Labor needs of village
- e2. Surplus labor
- f2. Potentials for developing village
  - c1. Evaluation of situation from village data
    - a2. Which villages should be moved or combined
    - b2. Opportunities for village development and employment
      - a3. Development of village lands
      - b3. Development of government lands
      - c3. Village improvement projects
      - d3. Outside employment
      - e3. Other opportunities
- 3. Government and private programs planned (non-poppy funding) and employment potential for region
  - a. Highways and roads
  - b. Villages
  - c. Forestry
  - d. Erosion and flood control
  - e. New government or private industries, markets, etc.

II. Outline for collecting and analyzing data and  
technical information for the grains sector 5/  
(wheat, barley, rye, oats, corn, sorghum, and millet)

A. Introduction

B. For each grain crop:

1. Crop situation (obtain average for 1965-70 and annual data for 1971 and 1972 for region, province and county)
  - a. Hectares grown and proportion of cropland
  - b. Total production
  - c. Yield per hectare
  - d. Evaluate yields, by years
    - a1. Factors affecting
    - b1. Bottlenecks
    - c1. Inputs
  - e. Input-yield relations
  - f. Government policy
2. Agencies affecting each grain (present activities in region, province, county, and level of inputs)
3. Market situation
  - a. Consumption (demand) in region, nation, and trend for 1965--72
  - b. Export situation
  - c. Storage facilities and transportation
  - d. Price policy
  - e. Cost of production

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5/ This outline is a revision of I.C. and is a combination outline for data collection and for presentation of analysis in manuscript form. Revised by Kemal Haksel.

- f. Seasonal and yearly fluctuations in price
- g. Market structure
- h. Processing facilities

4. Farm analysis

- a. Soil type factors
- b. Farm inventories--land, livestock, machinery, etc.
- c. Financial situation, by size and type on grain-producing farms, including family income
- d. Family labor situation

C. Potential for improving farm production and income

1. Improving present farms
  - a. Increase area planted
  - b. Increase yields, production, and income
    - a1. Capital
    - b1. Technology
    - c1. Machinery and equipment
    - d1. Price
    - e1. Storage
    - f1. Crop rotation
    - g1. Marketing
    - h1. Processing
    - i1. Labor requirements
    - j1. Surplus labor
2. Optimum farm units, on basis of level of living, according to the land reform law
3. Conclusions

III. Sources of data and technical assistance  
available in developing a plan for the  
Poppy Region

- A. State Institute of Statistics
  - 1. Censuses
  - 2. "Annual Statistics of Turkey"
  - 3. Special surveys
  - 4. "Monthly Bulletin of Statistics"
  - 5. "Agricultural Structure and Production"
  - 6. "Foreign Trade Annual Statistics"
  - 7. "Statistical Yearbook of Turkey"
- B. Agricultural Bank of Turkey, General Directorate (Ankara, provinces, counties)
  - 1. Agricultural credit
- C. Food and Agricultural Organization, U.N.
  - 1. "Annual Statistics of Agriculture"
  - 2. "Trade Yearbook"
- D. Ministry of Agriculture
  - 1. General Directorate, Agricultural Planning and Economic Research
    - a. Economic research publications
  - 2. General Directorate, Plant Protection and Quarantine (Ankara, provinces)
    - a. Use of pesticides
  - 3. Agricultural Marketing Division
    - a. Marketing statistics and research
  - 4. General Directorate, Technical Agriculture (Ankara, provinces, counties)
    - a. Application of inputs in agriculture

5. Directorate of Veterinary Services (Ankara, provinces, counties)
  - a. Animal production
  - b. Diseases, quarantines
  - c. Artificial insemination
6. Agricultural Supply Office (Ankara, provinces, some counties)
  - a. Farm supplies
  - b. Credit

E. Joint Turkish/American Agricultural Team

1. "Improving Farm Income in the Poppy Region"
2. "Improving Farm Income in the Poppy Region--A Program for Action"

F. Interministerial Commission on Poppies

1. "Resource Inventory of the Provinces of Afyon, Usak, Kutahya, Isparta, Denizli and Konya."
2. "Resource Inventory of the Provinces of Afyon, Usak, Kutahya, Isparta, Denizli and Konya, An Economic Analysis of Poppy Related Activities."

G. State Planning Organization

1. "Third Five Year Development Plan, 1973-77"
2. Annual programs
3. Special analyses of supply, demand, etc.

H. Ministry of Forestry, General Directorate, (Ankara, provinces)

1. "Forestry Statistics"

I. The Rockefeller Foundation (Wheat Research and Training Center)

J. Ministry of Village Affairs (Ankara, provinces)

1. Toprak Su
  - a. On-farm irrigation
  - b. Soil capability surveys

- c. Soil conservation
- 2. General Directorate for Village Research and Development
  - a. Village cooperatives
  - b. Agro-industries
  - c. Handicrafts
  - d. Credit
- 3. General Directorate for Land Resettlement
  - a. Moving villages
  - b. Village consolidation
  - c. Landless families
  - d. Credit
- 4. General Directorate for Roads, Water and Electricity

K. Ministry of Energy and Natural Resources, State Hydraulic Works (DSİ)  
(Ankara, provinces and projects)

- 1. Off-farm irrigation development
- 2. Flood control

L. Turkish Sugar Industry Corporation

- 1. Production and processing of sugar beets

M. Ministry of Commerce and Trade

- 1. Foreign Trade Directorate
  - a. Production statistics
  - b. Export of agricultural commodities
- 2. Organization Directorate
  - a. Market organization

N. Ministry of Transportation

- 1. Transportation of agricultural supplies and products

O. U.S.A.I.D.

1. Technicians

- a. Marketing and processing of fruits and vegetables
- b. Crop production
- c. Soil and water
- d. Economic analysis
- e. Financing

2. Research Reports:

- a. "Migration and Urban Social Structures"
- b. "Recommendations and Projections for the Turkish Fertilizer Industry"
- c. Others

P. Ministry of Construction

- 1. Metropolitan planning
- 2. Construction material standards

Q. Ankara University, agricultural faculty

- 1. Research
- 2. Technical knowledge

R. Ege University, agricultural faculty

- 1. Research
- 2. Technical knowledge

S. American University, Beirut, Lebanon

- 1. "Small Farmer Credit in Turkey" (copies in USIA)

#### IV. Procedure preparing section 6 of plan

##### A. Objectives of section 6 of the plan outline

1. Inventory resources of Area I
  - a. Human resources
  - b. Physical resources
  - c. Living conditions
  - d. Programs of government and private organizations
2. Determine present employment in area
  - a. Kinds of employment and number in each
3. Evaluate potential for employment
  - a. Potential kinds of additional employment in village area
  - b. Seasonal employment in region
  - c. Permanent employment elsewhere
4. Need for migration
  - a. Within region
    - al. Families
    - bl. Villages
  - b. Outside region
5. Develop program of action
  - a. Increase land base
  - b. Increase output on land base
  - c. Increase industrial base
  - d. Seasonal employment elsewhere
  - e. Permanent employment elsewhere
    - al. Migration of families
    - bl. Migration of villages
  - f. Improving living in village

g. Resources required to implement 1-6

B. Collection of data

C. Analysis of data

a. Village survey

b. Interrelationship to contiguous agricultural lands (on farm activities)

c. Interrelationship to non-farm activities in region

D. Preparation of plan

1. Follow outline of "Objectives of Plan"

## V. Functions of subcommittees

### A. General subcommittee

1. Obtain data from State Institute of Statistics for region
2. Obtain agency data from operating agencies of present activities in region

### B. Sector subcommittees

1. Collect and assemble data
  - a. Review and approve sector outlines
  - b. Collect specified data and general information
2. Assess current state of technology
3. Analyze potential technology
4. Identify problem areas
5. Present alternative solutions

### C. Area I subcommittee (through use of existing data and use of information collected in the Area 1 survey)

1. Assess unemployment and conditions for region
2. Present possible sources of employment
3. Present means of improving quality of living in region

## VI Proposed farm data collection in poppy region

### A. Needs for and uses of farm survey data

#### 1. For development of regional plan

- a. To determine, in the proposed project areas and for major types and sizes of farms, the present level of technology and farm income
- b. Using sample farms, apply alternative changes in inputs to determine probable effects on income
- c. Review proposed changes that would result from programs with agricultural technicians and farmers to determine probable bottlenecks to accomplishment of objectives of proposed programs

#### 2. To estimate probable effects of programs on farm incomes for the region

#### 3. To provide guidance to the administration of the program

### B. Procedure

To fulfill the needs indicated above, farm business inventory, input, output and financial data are needed for typical farms by size and type for the region. The field survey recently completed by Ankara University in Afyon and Usak Provinces can probably provide such data for the northern portion of the Region with the possible exception of Kutahya Province. Variations in soil, climate, and topography tend to influence the type of farming practiced. However, it is believed, for example, that because of the relatively small geographic area of the Region, wheat farms on Area III lands in the Region tend to use the same variety of wheat, the same kind of fertilizer and herbicides, etc. for the same sized farms. The same principle would apply to other types of farms.

An additional field survey seems desireable in the Burdur-Isparta area since milder climate and more rainfall in the southern portion of the region result in greater production of fruits and vegetables as well as different crop rotations than in the north.

It is proposed that arrangements be made to:

1. Have Ankara University classify farms recently surveyed in Afyon and Usak Provinces into size-type classes and provide specified data on typical farms for each major class for use in developing the regional plan.
2. Have Ankara University proceed with analysis of the data as originally planned by the General Directorate for Planning, Research, and Coordination. This analysis would partially fulfill needs 2 and 3 as stated in Section A of this paper.
3. Based on the experience from the University study in classifying the farms, develop a survey proposal for the Burdur-Isparta area:
  - a. Of typical size-type farms on Land Use Area III lands (probably 100 farms).
  - b. Of typical size-type farms on Area V and VI lands recently irrigated (1969-70) through Toprak Su projects (probably 50 farms).

The limited resources and time available for data collection and analysis probably means that additional farm surveys should not be planned to provide information for developing the regional plan.

VII. Comments on proposed survey of former poppy growing villages  
in Area I

The following points were made in the High Committee meeting April 18:

1. The Ministry of Village Affairs wants to bring up to date population, physical, economic, social, and other data for each of the villages. The present village data is 10 years old. Much of the up-to-date information has been copied on the survey forms from secondary sources. The survey form has been field tested.
2. The desire is to develop a program first for the former poppy growing villages and then develop a program for other Area I villages.
3. The plan is to set up an Area I Subcommittee to oversee the collection of the village data. Three man committees would be established in each province and in each county to assist as needed in the survey. These committees would generally be composed of one representative each from Technique Ziraat of Ministry of Agriculture, Ministry of Village Affairs, and Ministry of Forestry.
4. People at the province and county level (even school teachers) can be used to do the interviewing.
5. Analysis of the data would be done in Ankara under the supervision of the Area I Subcommittee.

Suggestions on village survey:

1. Plan to survey all 452 poppy growing villages. Have the new data from published sources on schedules before the field survey. If this is not feasible be sure to indicate in enumerator training which parts of the questionnaire will be completed from available sources of data.
2. Enumerators should be selected who can be effective in obtaining objective answers to survey questions. They should have field training

as well as group training in interviewing. That is, they should survey a village and have a supervisor review with them the results and how to improve their enumeration.

3. Have interviewers work in 2 man (or woman) teams.
4. Inform village heads beforehand so that they will know why the survey is being made and when the team will make its visit. Have a representative of the county office of Technique Ziraat (or some other appropriate county official) accompany the team to the village.
5. Consider adding another page of general questions to ask county technicians what programs they think desirable.

Suggested use of the data:

1. Select typical villages for special study.
  - a. Summarize data from questionnaire.
  - b. Obtain from operating agencies present plans for improvement and employment in typical villages. Also obtain agency proposals for additional programs needed in these villages that might be financed by special funds.
  - c. Develop proposal for improving employment of each village. The plans should be checked with technicians, etc. for their suggestions.
  - d. Aggregate data for the region.

For this analysis see III. "Procedure for planning farm and non-farm employment opportunities for Poppy Region."

Proposals for employment in sample villages should serve as guides for developing programs for other villages.

VIII. Recommended programs for Poppy Region from Joint  
Turkish/American Team reports

A. Area I

1. Lands that should not be cropped
2. Identify villages
3. Develop alternative employment programs
4. Recommend an action program for each village

B. Wheat, on Area III Lands

1. Increase use of inputs such as fertilizer, HYV seed, herbicides, and pesticides
2. Improve cultural practices on 245,000 ha. first year, 142,000 ha. additional second year

C. Increase sunflower production area by 77,000 ha. (of this, 20% on Area III lands, and the remainder of Area V and VI irrigated lands)

1. Produce sunflower in rotation with sugarbeets, sorghum, corn, annual legumes, and vegetables on Area V and VI lands.
2. On Area III lands, rotate with wheat, millet, sorghum and vetch
3. Initiate adaptation research on safflower in warmer parts and rape culture as winter-grown oilseed

D. Improve livestock programs

1. No new programs are recommended in the short run. Help strengthen ongoing programs. Increase feed production, increase credit, marketing and technical assistance, increase fattening near sugarbeet factories. Feed grains and forage crops will be required in the crop rotation before significant expansion in the area of livestock production is feasible

2. Give more emphasis to the program to improve Angora goat production through better feeding and management practices. Strengthen artificial insemination program
- E. Expand poultry (both broilers and layers) production near population centers
  1. Increase concentrate feed resources
  2. Improve genetic stock capable of response to high level management
  3. Provide housing
  4. Provide technology relating to breeding, feeding, health, and general husbandry
  5. Improve general managerial capability
  6. Improve or expand processing and marketing
  7. Provide adequate credit
- F. Expand forage crop production
  1. Alfalfa, 3000 ha. additional on Area III land
  2. Sainfoin, 2000 ha. additional on Area III land
  3. Vetch, 100 ha. additional on Area II land
- G. Expand fruit production
  1. Plant 200 to 300 ha., including sour cherries, sweet cherries, table and wine grapes, apricots, strawberries, and nuts
- H. Expand vegetable production
  1. Denizli 150 ha., Burdur 75 ha., and Isparta 75 ha., including onions, garlic, potatoes, tomatoes (industrial and fresh), peppers (red), spinach, carrots, cauliflower, and green beans
  2. Export garlic, onion, red pepper, and green beans
- I. Add or expand agro-industries where needed
  1. Beer and malt, oil, sugar (one factory), feed (Isparta and Burdur),

fruit juice, and dairy products

J. Land improvement

1. Irrigate new lands in Areas II and III
  - a. Short term (1 year), 20 projects, 6,500 ha.
  - b. Intermediate (2 to 3 years), 13,658 ha.
2. Land development
  - a. Improve farm irrigation on 39,550 ha. of Area V and VI lands

K. Improve marketing of livestock products, poultry and eggs, fresh fruits and vegetable and other products outside support prices where needed

1. Marketing research
2. Training in marketing
3. Establish institutions where needed
  - a. Assembling centers
  - b. Packaging industries
  - c. Storage
4. Transportation
  - a. From field to assembly center
  - b. From center to consumption centers
5. Market information and news
6. Marketing organizations

L. Expand forage crops on Area II and III lands as released from wheat

M. Expand feed grain output by:

1. Revising price policy (in relation to wheat) to encourage feed grain production
2. Increasing wheat yields so lands can be released for feed grains

IX. Tables

Table A, Kinds of Villages in Poppy

Province	Region					All villages (1970)
	Area I Villages Grew poppies	Did not grow poppies	Total forest villages <sup>1/</sup>	Total villages that grew poppies <sup>2/</sup>		
Afyon	83	33	116	358	462	
Burdur	48	78	126	102	198	
Denizli	49	192	241	134	421	
Isparta	40	89	129	80	191	
Konya (4 counties)	45	27	72	124	168	
Kutahya	121	142	263	285	602	
Usak	<u>66</u>	<u>40</u>	<u>106</u>	<u>147</u>	<u>249</u>	
Total	452	601	1,053	1,230	2,291	

1/ Ministry of Village Affairs.

2/ Published by Ministry of Village Affairs.

3/ Ministry of Interior, Administrative District Section, 1970.

## Explanatory note on Land Capability Classes for Table B

### Cropland is best use

- I. Land adapted to all kinds of agriculture.
- II. Slight soil, topography, and drainage problems that affect agriculture. Can grow cereals, lentils, tobacco, corn, sugarbeets, vegetables, and forage crops with some conservation measures.
- III. Some soil, topography, and drainage problems that limit plowing and planting. Something must be done to conserve the soil. Can grow cereals, oats, lentils, beans, grapes, and chick peas.
- IV. Soil, topography, and drainage problems limit plowing and planting. Can grow cereals, grapes, and forage crops. Something must be done to conserve the soil.

### Lands not suitable for cultivation

- V. Has poor soil drainage.
- VI. Has bad soil drainage, shallow soils, or bad erosion.
- VII. Has very thin soils, serious erosion, stones, light alkalinity or bad drainage.
- VIII. Wasteland, rock, sand, swamp, etc.

Table B Land resource inventory, Poppy Region

Land capability classes 1/ Usak	Denizli	Afyon	Kutahya	Burdur	Isparta	Konya	Total
- - - - - Hectares - - - - -							
Tillable							
I	14,703	82,603	105,174	29,104	45,291	47,365	<u>2/</u> 68,000 392,240
II	51,653	115,939	186,675	97,916	78,925	68,684	58,000 657,792
III	66,228	128,561	148,007	79,567	56,077	55,461	67,000 600,901
IV	<u>70,192</u>	<u>71,941</u>	<u>139,921</u>	<u>88,586</u>	<u>18,505</u>	<u>38,577</u>	<u>49,000</u> <u>476,722</u>
Total	202,776	369,044	579,777	295,173	198,798	210,087	<u>3/</u> 242,000 2,127,655
Non-tillable (should not be tilled)							
V	300	1,841	6,230	1,060	4,615	2,206	5,000 21,252
VI	91,592	204,922	173,469	259,294	84,029	67,979	69,000 950,282
VII	<u>223,160</u>	<u>535,436</u>	<u>567,957</u>	<u>596,115</u>	<u>329,971</u>	<u>380,993</u>	<u>208,000</u> <u>2,841,632</u>
Total	315,052	742,199	747,656	856,469	418,615	451,175	<u>4/</u> 282,000 3,813,166
VIII (Non-productive)							
Total land	534,063	1,163,668	1,455,574	1,181,017	705,555	823,131	576,000 6,439,008
Percent of non-tillable land	62.0	65.7	60.2	75.0	71.9	74.5	58.0 65.0

1/ See explanatory note on preceding page.

2/ Proportion of land in I, II, III, IV, V, VI and VII same as in Table 3, Konya III Toprak, Kaynagi,

3/ Tables III-2, III-3 and III-4-4, "Improving Farm Income in the Poppy Region."

4/ Table III-1, "Improving Farm Income in the Poppy Region."

Table C. Land presently cultivated, by Land Use Areas and provinces<sup>1/</sup>

Provinces	Land Use Areas						Total
	I	II	III	IV <sup>2/</sup>	V & VI		
- - - - - - - - 1,000 Hectares - - - - - - - -							
Afyon	96	325	216	(185)	30		667
Burdur	30	60	121	(33)	29		240
Denizli	68	132	226	(72)	29		450
Isparta	47	43	151	(38)	8		249
Konya	28	53	150	(70)	19		250
Kutahya	195	160	117	(17)	31		503
Usak	<u>49</u>	<u>89</u>	<u>104</u>	<u>(16)</u>	<u>7</u>		<u>249</u>
Total	508	862	1,085	(431)	153		2,608

1/ From: "Improving Farm Income in the Poppy Region."

2/ See explanatory note on preceding page. Area IV includes some land in II and III.

Explanatory notes on Land Use Areas for Tables C and D

1/

Land Use Areas

Area I. Land is unsuited for cultivation and should be used for forest or extensive grazing. Includes land classes V, VI and VII,

Presently cultivated, 508,000 ha.

Total area, 3,813,000 ha.

Area II. Land has low rainfall or shallow soils and is not irrigated.

Choice of enterprises is very limited. Now used primarily for cereals and grazing.

Total cultivated area, 862,000 ha.

Deep soils, 175,000 ha. (irrigation raises to V and VI)

Shallow soils, 687,000 ha.

Area III. Land is not irrigated, but has more rainfall and deeper soils than Area II lands, which broaden the choice of enterprises.

Irrigation raises it to Area V and VI lands.

Total cultivated area, 1,085,000 ha.

Area IV. Includes land in II and III which is not now irrigated, but potentially could be irrigated from available sources of water, 431,000 ha.

Short term (1 year), 20 projects, 6,500 ha.

Intermediate (2 to 3 years), 3,250 ha.

Area V. Land is now irrigated, but the low temperature during growing season and cold winters limit the choice of crops.

Total 124,000 ha.

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1/ From "Improving Farm Income in the Poppy Region, Recommendations of the Joint Turkish/American Agricultural Mission."

Area VI. Land is now irrigated; a warmer growing season and milder winters allow wider crop selection. Most of this land is in Denizli province outside the poppy growing region.

total 29,000 ha.

Table D. Land Use Areas, by provinces <sup>1/</sup>

Provinces	I	II	III	IV <sup>2/</sup>	V & VI	Total
- - - - - - - - - 1,000 Hectares - - - - - - - - -						
Afyon	748	346	229	(185)	30	1,353
Burdur	419	66	133	(33)	29	647
Denizli	742	148	251	(72)	29 <sup>3/</sup>	1,170
Isparta	451	46	164	(38)	8	669
Konya	282	58	165	(70)	19	524
Kutahya	856	171	124	(17)	31	1,182
Usak	<u>315</u>	<u>92</u>	<u>109</u>	<u>(16)</u>	<u>7</u>	<u>523</u>
Total	3,813	927	1,175	(431)	153	6,068

1/ From: "Improving Farm Income in the Poppy Region."

2/ See explanatory note on page 42. Area IV includes some land in II and III.

3/ Land use Area VI.

Table E. Relationship between land capability classes and Land Use Areas

Land capability classes	1,000 Hectares	Land Use Areas	1,000 Hectares
I	392	III	1,085
II	658 1,050	V and VI	153
III	601	II	862
IV	477 1,073		
V	21	I	3,813
VI	950		
VII	2,842 3,813		
Total	5,941		5,913

Source: "Improving Farm Income in the Poppy Region, Recommendations of The Joint Turkish, American Agricultural Mission."

Groupings in the table are the author's attempt to show relationships between land capability classes and Land Use Areas.

Generally, land capability class soils I and II appear to be included in Land Use Area III. Similarly, land capability class soils III and IV appear to be included in Land Use Area II. Land Use Areas V and VI would have been included in Land Use Areas II and III before irrigation. Some land capability class I and II soils that are deep, but have limited rainfall, appear to be included in Land Use Area II lands. Much of land capability class III soils appear to be included in Land Use Area III lands.

Notes on meeting in Mr. Adem Karaelmas' office

April 25, 1973

Present: Clifford Doke, Buis Inman, Adem Karaelmas and other officials of Agricultural Products Office ("T.M.O.")

Mr. Karaelmas reported that TMO had been authorized funds to conduct a study of what can be done to assist the former poppy growers in investing their payments in productive uses. It appeared that very little planning has been for conducting the study and suggestions were requested.

After some discussion the suggestion was made that three kinds of inquiry seem pertinent for a field survey:

1. How did they use the payment made in March 1972?

2. How would they like to invest the payment to be made soon? To help recipients in answering this question provide such alternatives as (a) form a credit institution, (b) finance a local industry, (c) finance a marketing facility, (d) make village improvements (e) provide means of transportation, as a dolmus, tractor with trailer, or a truck, (f) provide siren service, (g) retail business, etc.

3. How much might each recipient invest in one or more such activities?

We also discussed the possibility of contracting with the State Institute of Statistics (SIS) to conduct the field survey for the Area I village survey and the TMO survey at the same time with the same enumerators. A sample of recipients of TMO payments could be drawn by villages from available lists and by using possibly a one page survey form to obtain the data for the TMO study. To be applicable to the entire poppy region, a sample of payment recipients in villages not classed as Area I villages would also need to be surveyed. The SIS would also be contracted to tabulate the data.

The point was stressed that SIS has technicians well experienced in preparing questionnaires and conducting surveys and that their expertise could be very valuable to the surveys. Not only should this provide better surveys, but combining the two would save money.

Mr. Karaelmas also reported that he had received a request from the General Directorate for Planning, Research and Coordination, Ministry of Agriculture, for financial assistance in completing the alternative cropping studies in Afyon and Usak Provinces. We reviewed recommendations on these studies made in my final report and emphasized the need to have them completed.

